



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

one of them possesses an entire organ that is absent in the other. *Scomber scombrus* is without a swim bladder; *Scomber japonicus* has a well-developed one.

This is a most glaring inconsistency. On one hand, to separate two genera on the basis of a mere modification of an organ that is possessed by both of them, and on the other hand, to include in one genus two forms, one of which possesses an organ that is absent in the other. Making this inconsistency more marked is the fact that in the case of the sharks it is only during a part of the life of the animals (when they are with young) that the character of the 'placenta,' upon which the genus is based, can be ascertained. In the mackerel the presence or absence of the swim bladder can be seen at any time by simply opening the abdominal cavity.

On the whole, workers in vertebrate taxonomy seem to be more chary than those in invertebrate, in making use of internal characters in classification. The fact that a character is not readily apparent should not influence its use if animals are to be arranged in their true relationship.

Such a marked structural difference as the possession of an organ as compared with the suppression of it certainly should be considered of generic weight. Therefore it would seem well to raise the subgenus *Pneumatophorus* Jordan and Gilbert, to generic rank. The American species, *Scomber colias* and *S. japonicus*, would thus stand *Pneumatophorus colias* and *P. japonicus*.

EDWIN C. STARKS

#### AN IMPROVED METHOD OF ESTIMATING THE NUMBER OF GENETIC FACTORS CON- CERNED IN CASES OF BLEND- ING INHERITANCE

DR. SEWALL WRIGHT has kindly pointed out an error in the formula which I recently suggested<sup>1</sup> in connection with this subject. Instead of taking the direct difference between the standard deviations of  $F_1$  and  $F_2$ , as I did, one should deal with the difference between the *squared* standard deviations. Dr. Wright bases this correction on his discussion

of the fundamentals of factorial theory as developed particularly in "Systems of Mating IV.," *Genetics*, 6, March, 1921. He gives the correct formula for the number of factors ( $n$ ) concerned in a case of blending inheritance as

$$n = \frac{D^2}{8(\sigma_2^2 - \sigma_1^2)},$$

in which  $D$  is the difference between the means of the parental races,  $\sigma_1$  is the standard deviation of  $F_1$ , and  $\sigma_2$  is the standard deviation of  $F_2$ . This method gives in general a smaller number of genetic factors than the method which I suggested, and its use is simpler. Applied to the examples which I cited, it gives, in the case of seed weight of maize, 4 or 5 factors instead of "about 15"; and in the case of weight of rabbits in three different crosses, 3, 14 and 22 or 23 factors, instead of 56, 80, and 176, respectively. I am greatly indebted to Dr. Wright for the correction.

W. E. CASTLE

#### THE CURVE OF DISTRIBUTION

TO THE EDITOR OF SCIENCE: An explanation of the irregularities in the curve of the distribution of the heights of 221,819 men, taken from insurance statistics, to which Professor Boring called attention in *SCIENCE* for November 12, 1920, may possibly be found in the nature of the measuring devices used by the examining physicians. One of the three leading types on the market and at least one other are graduated in inches alone instead of in feet and inches. The tendency for men who use these scales to read off the round number, 70 inches, instead of 69, and 60 inches instead of 59, might be great enough to account for the "bumps" in the Gaussian curve at 5 ft. 10 in. and at 5 ft.; and the lowering of the average height which would result from the correction of these exaggerations might change the ideal curve sufficiently to bring the bump at 5 ft. 8 in. within the normal limits of error for a curve whose unit of measurement is so large in comparison to the total range of variation.

CARL H. P. THURSTON

PASADENA, CALIF.

<sup>1</sup> *SCIENCE*, July 29, 1921.